

OCT 31 2005

Page 1 of 14

| | | | | | | |
|---|--|--|--|--|--------------------------------------|--------------------------|
| Form PTO-149 (Rev. 2-32) U.S. DEPARTMENT OF COMMERCE Patent and Trademark Office | | | | | Atty. Docket No. IMMR-IMD0002E | Serial No. 10/657,144 |
| Information Disclosure Statement by Applicant | | | | | Applicant: David Alexander et al. | |
| (Use several sheets if necessary) | | | | | Filed: September 9, 2003 | Group: 3714 |

U.S. Patent Documents

| Init. | | Document No. | Date | Name | Class | Subclass | Filing Date |
|-------|---|--------------|------------|---------------------|-------|----------|-------------|
| 04/9 | A | 2,972,140 | 9/23/1958 | J. Hirsch | | | |
| 04/9 | B | 3,157,853 | 12/6/1957 | J. Hirsch | | | |
| 04/9 | C | 3,220,121 | 11/30/1965 | A.E. Cutler | | | |
| 04/9 | D | 3,226,846 | 1/4/1966 | W.C. Wood | | | |
| 04/9 | E | 3,304,434 | 2/14/1967 | R.A. Koster | | | |
| 04/9 | F | 3,497,668 | 2/24/1970 | J. Hirsch | | | |
| 04/9 | G | 3,517,446 | 6/30/1970 | P.R. Corlyon et al. | | | |
| 04/9 | H | 3,541,541 | 11/17/1970 | P.C. Engelbart | | | |
| 04/9 | I | 3,623,064 | 11/23/1971 | Kagan | | | |
| 04/9 | J | 3,748,366 | 7/24/1973 | Rader et al. | | | |
| 04/9 | K | 3,775,865 | 12/4/1973 | Kowan | | | |
| 04/9 | L | 3,902,687 | 9/2/1975 | Hightower | | | |
| 04/9 | M | 3,903,614 | 9/9/1975 | Diamond et al. | | | |
| 04/9 | N | 3,911,416 | 10/7/1975 | Feder | | | |
| 04/9 | O | 4,127,752 | 11/28/1978 | Lowthorp | | | |
| 04/9 | P | 4,160,508 | 7/10/1979 | Salisbury, Jr. | | | |
| 04/9 | Q | 4,236,325 | 12/2/1980 | Hall et al. | | | |
| 04/9 | R | 4,262,549 | 4/21/1981 | Schwellenbach | | | |
| 04/9 | S | 4,321,047 | 3/23/1982 | Landis | | | |
| 04/9 | T | 4,333,070 | 6/1/1982 | Barnes | | | |

Foreign Documents**Translation**

| Init. | | Document No. | Date | Country | Class | Subclass | Yes | No |
|-------|---|--------------|-----------|---------|-------|----------|-----|----|
| 04/9 | U | H2-185278 | 1/12/1989 | JP | | | X | |
| 04/9 | V | H4-8381 | 4/25/1990 | JP | | | X | |
| 04/9 | W | H5-192449 | 1/20/1992 | JP | | | X | |

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|------|----|--|
| 04/9 | X | Adelstein, "A Virtual Environment System for the Study of Human Arm Tremor", Ph.D. Dissertation, Dept. of Mechanical Engineering, MIT, June 1989, 33 pages. |
| 04/9 | Y | Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control Research", DSC-Vol. 42, Advances in Robotics ASME, 1992, pp. 1-12. |
| 04/9 | Z | Aukstakalnis, et al., "Silicon Mirage: The Art and Science of Virtual Reality", 1992, pp. 129-180. |
| 04/9 | AA | Baigrie, Stephan A., "Electric Control Loading - A Low Cost, High Performance Alternative", Proceedings of Interservice/Industry Training Systems Conference, November 6-8, 1990, pp. 247-254. |

Examiner *afaria foica*Date Considered *1/6/05*

Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant.

| | | | | | |
|---|--|--|--|--------------------------------------|--------------------------|
| Form PTO 1449 (Rev. 2-32) U.S. Department of Commerce Patent and Trademark Office | | | | Atty. Docket No. IMMR-IMD0002E | Serial No. 10/657,144 |
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | | | Applicant: David Alexander et al. | |
| | | | | Filed: September 9, 2003 | Group: 3714 |

| U.S. Patent Documents | | | | | | | |
|-----------------------|----|--------------|------------|----------------------|-------|----------|-------------|
| Init. | | Document No. | Date | Name | Class | Subclass | Filing Date |
| 04/9 | AB | 4,360,345 | 11/23/1982 | Hon | | | |
| 04/9 | AC | 4,409,479 | 10/11/1983 | Sprague et al. | | | |
| 04/9 | AD | 4,423,428 | 12/27/1983 | Kuwabara et al. | | | |
| 04/9 | AE | 4,459,113 | 7/10/1984 | Boscaro Gatti et al. | | | |
| 04/9 | AF | 4,464,117 | 8/7/1984 | Foerst | | | |
| 04/9 | AG | 4,484,191 | 11/20/1984 | Vavra | | | |
| 04/9 | AH | 4,490,810 | 12/25/1984 | Hon | | | |
| 04/9 | AI | 4,513,235 | 4/23/1985 | Acklam et al. | | | |
| 04/9 | AJ | 4,581,491 | 4/8/1996 | Boothroyd | | | |
| 04/9 | AK | 4,599,070 | 7/8/1986 | Hladky et al. | | | |
| 04/9 | AL | 4,642,055 | 2/10/1987 | Saliterman | | | |
| 04/9 | AM | 4,708,656 | 11/24/1987 | de Vries et al. | | | |
| 04/9 | AN | 4,712,101 | 12/8/1987 | Culver | | | |
| 04/9 | AO | 4,713,007 | 12/15/1987 | Alban | | | |
| 04/9 | AP | 4,726,772 | 2/23/1988 | Amplatz | | | |
| 04/9 | AQ | 4,767,333 | 8/30/1988 | Born | | | |
| 04/9 | AR | 4,773,865 | 9/27/1988 | Baldwin | | | |
| 04/9 | AS | 4,789,340 | 12/6/1988 | Zikria | | | |
| 04/9 | AT | 4,794,392 | 12/27/1988 | Selinko | | | |
| 04/9 | AU | 4,804,328 | 2/14/1989 | Barrabee | | | |

Foreign Documents

Translation

| Init. | | Document No. | Date | Country | Class | Subclass | Yes | No |
|-------|----|--------------|-----------|---------|-------|----------|-----|----|
| 04/9 | AV | H7-24147 | 7/12/1993 | JP | | | X | |
| 04/9 | AW | 0 349 086 | 6/29/1988 | EP | | | X | |
| 04/9 | AX | 0 970 714 | 1/12/2000 | EP | | | X | |

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|------|----|--|
| 04/9 | AY | Bejczy, et al., "A Laboratory Breadboard System for Dual-Arm Teleoperation", SOAR '89 Workshop, July 25-27, 1989, pp. 1-12. |
| 04/9 | AZ | Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators", Proceedings of Fourth CISM-IFTOMM, September 8-12, 1981. |
| 04/9 | BA | Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator", International Computer Technology Conference, The American Society of Mechanical Engineers, August 12-15, 1980. |
| 04/9 | BB | Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation", Science, vol. 208, no. 4450, 1980, pp. 1327-1335. |

| | |
|---|----------------------------------|
| Examiner <i>Afaria Stoica</i> | Date Considered <i>1/6/06</i> |
| Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant. | |

| | | | | | |
|---|--|--|--|---|--------------------------|
| Form PTO 1449 (Rev. 2-32) U.S. Department of Commerce Patent and Trademark Office | | | | Atty. Docket No. IMMR-IMD0002E | Serial No. 10/657,144 |
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | | | Applicant: David Alexander et al. | |
| | | | | Filed: September 9, 2003 | Group: 3714 |

| U.S. Patent Documents | | | | | | | |
|-----------------------|----|--------------|------------|--------------------|-------|----------|-------------|
| Init. | | Document No. | Date | Name | Class | Subclass | Filing Date |
| 04/4 | BC | 4,807,158 | 2/21/1989 | Blanton et al. | | | |
| 04/4 | BD | 4,867,168 | 9/19/1989 | Stoor et al. | | | |
| 04/4 | BE | 4,867,685 | 9/19/1989 | Brush et al. | | | |
| 04/4 | BF | 4,879,668 | 11/7/1989 | Cline et al. | | | |
| 04/4 | BG | 4,885,565 | 12/5/1989 | Embach | | | |
| 04/4 | BH | 4,891,764 | 1/2/1990 | McIntosh | | | |
| 04/4 | BI | 4,907,973 | 3/13/1990 | Hon | | | |
| 04/4 | BJ | 4,930,770 | 6/5/1990 | Baker | | | |
| 04/4 | BK | 4,934,694 | 6/19/1990 | McIntosh | | | |
| 04/4 | BL | 4,936,862 | 6/26/1990 | Walker et al. | | | |
| 04/4 | BM | 4,936,892 | 6/26/1990 | Gehring et al. | | | |
| 04/4 | BN | 4,955,654 | 9/11/1990 | Tsuchihashi et al. | | | |
| 04/4 | BO | 5,019,761 | 5/28/1991 | Kraft | | | |
| 04/4 | BP | 5,022,384 | 6/11/1991 | Freels et al. | | | |
| 04/4 | BQ | 5,022,407 | 6/11/1991 | Horch et al. | | | |
| 04/4 | BR | 5,035,242 | 7/30/1991 | Franklin et al. | | | |
| 04/4 | BS | 5,038,089 | 8/6/1991 | Szakaly | | | |
| 04/4 | BT | 5,044,956 | 9/3/1991 | Behensky et al. | | | |
| 04/4 | BU | 5,077,608 | 12/31/1991 | Dubner | | | |
| 04/4 | BV | 5,078,152 | 1/7/1992 | Bond et al. | | | |

Foreign Documents

Translation

| Init. | | Document No. | Date | Country | Class | Subclass | Yes | No |
|-------|----|--------------|------------|---------|-------|----------|-----|----|
| 04/4 | BW | 2 252 656 | 8/12/1992 | GB | | | X | |
| 04/4 | BX | 2 288 686 | 10/25/1995 | GB | | | X | |

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|------|----|---|
| 04/4 | BY | Bejczy et al., "Universal Computer Control System (UCCS) for Space Telerobots", IEEE, March 31-April 3, 1987, pp. 318-324. |
| 04/4 | BZ | Bliss et al., "Optical-to-Tactile Image Conversion for the Blind", IEEE Transaction of Man-Machine Systems, Vol. MMS-11, No. 1, March 1970, pp. 58-65. |
| 04/4 | CA | Brooks et al., "Hand Controllers for Teleoperation", A State-of-the-Art Technology Survey and Evaluation, JPL Publication 85-11, March 1, 1985, pp. 1-84. |
| 04/4 | CB | Burdea et al., "Distributed Virtual Force Feedback", IEEE International Conference on Robotics and Automation, May 2, 1993, pp. 25-44. |

Examiner *Ariana Stoica*

Date Considered

1/5/06

Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant.

| | | | | | |
|---|--|--|--|--------------------------------------|--------------------------|
| Form PTO 1449 (Rev. 2-32) U.S. Department of Commerce Patent and Trademark Office | | | | Atty. Docket No. IMMR-IMD0002E | Serial No. 10/657,144 |
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | | | Applicant: David Alexander et al. | |
| | | | | Filed: September 9, 2003 | Group: 3714 |

| U.S. Patent Documents | | | | | | | |
|-----------------------|----|--------------|------------|-----------------|-------|----------|-------------|
| Init. | | Document No. | Date | Name | Class | Subclass | Filing Date |
| alp | CC | 5,086,401 | 2/4/1992 | Glassman et al. | | | |
| alp | CD | 5,099,846 | 3/31/1992 | Hardy | | | |
| alp | CE | 5,112,228 | 5/12/1992 | Zouras | | | |
| alp | CF | 5,130,794 | 7/14/1992 | Ritchey | | | |
| alp | CG | 5,137,458 | 8/11/1992 | Unas et al. | | | |
| alp | CH | 5,149,270 | 9/22/1992 | McKeown | | | |
| alp | CI | 5,165,897 | 11/24/1992 | Johnson | | | |
| alp | CJ | 5,175,459 | 12/29/1992 | Danial et al. | | | |
| alp | CK | 5,185,561 | 2/9/1993 | Good et al. | | | |
| alp | CL | 5,186,695 | 2/16/1993 | Mangseth et al. | | | |
| alp | CM | 5,205,289 | 4/27/1993 | Hardy et al. | | | |
| alp | CN | 5,212,473 | 5/18/1993 | Louis | | | |
| alp | CO | 5,220,260 | 6/15/1993 | Schuler | | | |
| alp | CP | 5,222,499 | 6/29/1993 | Allen et al. | | | |
| alp | CQ | 5,240,417 | 8/31/1993 | Smithson et al. | | | |
| alp | CR | 5,261,404 | 11/16/1993 | Mick et al. | | | |
| alp | CS | 5,271,290 | 12/21/1993 | Fischer | | | |
| alp | CT | 5,273,038 | 12/28/1993 | Beavin | | | |
| alp | CU | 5,275,174 | 1/4/1994 | Cook | | | |
| alp | CV | 5,283,970 | 2/8/1994 | Aigher | | | |

Foreign Documents

Translation

| Init. | | Document No. | Date | Country | Class | Subclass | Yes | No |
|-------|--|--------------|------|---------|-------|----------|-----|----|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|-----|----|---|
| alp | CW | Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System", IEEE, 1993, pp. 955-960. |
| alp | CX | Cyberman Technology Specification, Logic Cyberman SWIFT Supplement to Logitech Mouse Reference and Programming Guide, April 5, 1994, pp. 1-29. |
| alp | CY | Calder, "Design of a Force-Feedback Touch-Inducing Actuator for Teleoperator Robot Control", Bachelor of Science Thesis, MIT, May 1993, pp. 1-37. |
| alp | CZ | Eberhardt et al., "Inducing Dynamic Haptic Perception by the Hand: System Description and Some Results", DSC-Vol. 56-1, Dynamic Systems and Control, Vol. 1, ASME, 1984, pp. 345-351. |

Examiner *Maria Stoica* Date Considered *1/6/06*

Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant.

| | | | | | |
|---|--|--|--|-----------------------------------|--------------------------|
| Form PTO 1449 (Rev. 2-32) U.S. Department of Commerce Patent and Trademark Office | | | | Atty. Docket No. IMMR-IMD0002E | Serial No. 10/657,144 |
|---|--|--|--|-----------------------------------|--------------------------|

| | | | | | |
|---|--|--|--|--------------------------------------|----------------|
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | | | Applicant: David Alexander et al. | |
| | | | | Filed: September 9, 2003 | Group: 3714 |

| U.S. Patent Documents | | | | | | | |
|-----------------------|----|--------------|------------|---------------------|-------|----------|-------------|
| Init. | | Document No. | Date | Name | Class | Subclass | Filing Date |
| 04/ | DA | 5,295,694 | 3/22/1994 | Levin | | | |
| 04/ | DB | 5,299,810 | 4/5/1994 | Pierce et al. | | | |
| 04/ | DC | 5,309,140 | 5/3/1994 | Everett, Jr. et al. | | | |
| 04/ | DD | 5,311,422 | 5/10/1994 | Loftin et al. | | | |
| 04/ | DE | 5,320,326 | 6/14/1994 | Ju et al. | | | |
| 04/ | DF | 5,320,537 | 6/14/1994 | Watson | | | |
| 04/ | DG | 5,320,538 | 6/14/1994 | Baum | | | |
| 04/ | DH | 5,322,441 | 6/21/1994 | Lewis et al. | | | |
| 04/ | DI | 5,333,106 | 7/26/1994 | Lanpher et al. | | | |
| 04/ | DJ | 5,334,027 | 8/2/1994 | Wherlock | | | |
| 04/ | DK | 5,338,198 | 8/16/1994 | Wu et al. | | | |
| 04/ | DL | 5,343,871 | 9/6/1994 | Bittman et al. | | | |
| 04/ | DM | 5,354,202 | 10/11/1994 | Moncrief et al. | | | |
| 04/ | DN | 5,376,007 | 12/27/1994 | Zirm | | | |
| 04/ | DO | 5,377,116 | 12/27/1994 | Wayne et al. | | | |
| 04/ | DP | 5,385,474 | 1/31/1995 | Brindle | | | |
| 04/ | DQ | 5,389,865 | 2/14/1995 | Jacobus et al. | | | |
| 04/ | DR | 5,391,081 | 2/21/1995 | Lampotang et al. | | | |
| 04/ | DS | 5,403,191 | 4/4/1995 | Tuason | | | |
| 04/ | DT | 5,414,337 | 5/9/1995 | Schuler | | | |

Foreign Documents

Translation

| Init. | | Document No. | Date | Country | Class | Subclass | Yes | No |
|-------|--|--------------|------|---------|-------|----------|-----|----|
| | | | | | | | | |
| | | | | | | | | |

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|-----|----|--|
| 04/ | DU | Eberhardt et al., "OMAR-A Haptic Display for Speech Perception by Deaf and Deaf-Blind Individuals", IEEE, 1993, pp. 195-201. |
| 04/ | DV | Gobel et al., "Tactile Feedback Applied to Computer Mice", International Journal of Human-Computer Interaction, vol. 7, no. 1, 1995, pp. 1-5. |
| 04/ | DW | Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback", Proceedings of the 1989 American Control Conference, June 21-23, 1989, pp. 332-337. |
| 04/ | DX | Howe, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation", IEEE, 1992, pp. 1321-1326. |

| | |
|---|-------------------------------|
| Examiner <i>Ariana Stoic</i> | Date Considered <i>1/5/06</i> |
| Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant. | |

| | | | | | |
|---|--|--|--|--------------------------------------|--------------------------|
| Form PTO 1449 (Rev. 2-32) U.S. Department of Commerce Patent and Trademark Office | | | | Atty. Docket No. IMMR-IMD0002E | Serial No. 10/657,144 |
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | | | Applicant: David Alexander et al. | |
| | | | | Filed: September 9, 2003 | Group: 3714 |

U.S. Patent Documents

| Init. | | Document No. | Date | Name | Class | Subclass | Filing Date |
|-------|----|--------------|------------|------------------|-------|----------|-------------|
| cyp | DY | 5,436,622 | 7/25/1995 | Gutman et al. | | | |
| cyp | DZ | 5,437,607 | 8/1/1995 | Taylor | | | |
| cyp | EA | 5,438,529 | 8/1/1995 | Rosenbert et al. | | | |
| cyp | EB | 5,451,924 | 9/19/1995 | Massimino et al. | | | |
| cyp | EC | 5,454,722 | 10/3/1995 | Holland et al. | | | |
| cyp | ED | 5,459,382 | 10/17/1995 | Jacobus et al. | | | |
| cyp | EE | 5,466,213 | 10/14/1995 | Hogan et al. | | | |
| cyp | EF | 5,482,472 | 1/9/1996 | Garoni et al. | | | |
| cyp | EG | 5,483,254 | 1/9/1996 | Powell | | | |
| cyp | EH | 5,483,961 | 1/16/1996 | Kelly et al. | | | |
| cyp | EI | 5,509,810 | 4/23/1996 | Schertz et al. | | | |
| cyp | EJ | 5,510,832 | 4/23/1996 | Garcia | | | |
| cyp | EK | 5,513,992 | 5/7/1996 | Refait | | | |
| cyp | EL | 5,518,406 | 5/21/1996 | Waters | | | |
| cyp | EM | 5,531,227 | 7/2/1996 | Schneider | | | |
| cyp | EN | 5,546,943 | 8/20/1996 | Gould | | | |
| cyp | EO | 5,547,382 | 8/20/1996 | Yamasaki et al. | | | |
| cyp | EP | 5,552,995 | 9/3/1996 | Sebastian | | | |
| cyp | EQ | 5,559,412 | 9/24/1996 | Schuler | | | |
| cyp | ER | 5,575,761 | 11/19/1996 | Hajianpour | | | |

Foreign Documents

Translation

| Init. | | Document No. | Date | Country | Class | Subclass | Yes | No |
|-------|--|--------------|------|---------|-------|----------|-----|----|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|-----|----|---|
| cyp | ES | IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device with Force and Tactile Feedback", vol. 32, no. 9B, February 1990. |
| cyp | ET | Iwata, "Pen-Based Haptic Virtual Environment", IEEE, 1993, pp. 287-292. |
| cyp | EU | Jacobsen et al., "High Performance, Dextrous Telerobotic Manipulator with Force Reflection", Intervention/ROV '91, Conference & Exposition, May 21-23, 1991, pp. 213-218. |
| | EV | Johnson, "Shape-Memory Alloy Tactical Feedback Actuator", Armstrong Aerospace Medical Research Laboratory, August 1990, pp. 1-33. |

Examiner *Maria Itica* Date Considered *1/5/06*

Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant.

| | | | | | |
|---|--|--|--|--------------------------------------|--------------------------|
| Form PTO 1449 (Rev. 2-32) U.S. Department of Commerce Patent and Trademark Office | | | | Atty. Docket No. IMMR-IMD0002E | Serial No. 10/657,144 |
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | | | Applicant: David Alexander et al. | |
| | | | | Filed: September 9, 2003 | Group: 3714 |

| U.S. Patent Documents | | | | | | | |
|-----------------------|----|--------------|------------|------------------|-------|----------|-------------|
| Init. | | Document No. | Date | Name | Class | Subclass | Filing Date |
| 04/ | EW | 5,576,727 | 11/19/1996 | Rosenberg et al. | | | |
| 04/ | EX | 5,589,854 | 12/31/1996 | Tsai | | | |
| 04/ | EY | 5,593,306 | 1/14/1997 | Kohnke | | | |
| 04/ | EZ | 5,609,485 | 3/11/1997 | Bergman et al. | | | |
| 04/ | FA | 5,623,582 | 4/22/1997 | Rosenberg | | | |
| 04/ | FB | 5,629,594 | 5/13/1997 | Jacobus et al. | | | |
| 04/ | FC | 5,666,138 | 9/9/1997 | Culver | | | |
| 04/ | FD | 5,682,886 | 1/4/1997 | Delp et al. | | | |
| 04/ | FE | 5,687,259 | 11/11/1997 | Linford | | | |
| 04/ | FF | 5,690,582 | 11/25/1997 | Ulrich et al. | | | |
| 04/ | FG | 5,691,898 | 11/25/1997 | Rosenberg et al. | | | |
| 04/ | FH | 5,701,140 | 12/23/1997 | Rosenberg et al. | | | |
| 04/ | FI | 5,704,791 | 1/6/1998 | Gillio | | | |
| 04/ | FJ | 5,721,566 | 2/24/1998 | Rosenberg et al. | | | |
| 04/ | FK | 5,722,836 | 3/3/1998 | Younker | | | |
| 04/ | FL | 5,724,264 | 3/3/1998 | Rosenberg et al. | | | |
| 04/ | FM | 5,731,804 | 3/24/1998 | Rosenberg | | | |
| 04/ | FN | 5,734,373 | 3/31/1998 | Rosenberg et al. | | | |
| 04/ | FO | 5,739,811 | 4/14/1998 | Rosenberg et al. | | | |
| 04/ | FP | 5,740,802 | 4/21/1998 | Nafis et al. | | | |

Foreign Documents

Translation

| Init. | | Document No. | Date | Country | Class | Subclass | Yes | No |
|-------|--|--------------|------|---------|-------|----------|-----|----|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|-----|----|--|
| 04/ | FQ | Jones et al., "A Perceptual Analysis of Stiffness", Experimental Brain Research, vol. 79, no. 1, 1990, pp. 150-156. |
| 04/ | FR | Kacmarek et al., "Tactile Displays", Virtual Environment Technologies, Chapter 9, 1995, pp. 349-414. |
| 04/ | FS | Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators", SPIE vol. 2057, 1993, pp. 40-50. |
| 04/ | FT | Kontarinis et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments", Presence, 1995, pp. 1-24. |

| | | |
|---|--------------|-----------------|
| Examiner | Maria Stoica | Date Considered |
| 1/5/04 | | |
| Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant. | | |

| | | | | | |
|---|--|--|--|--------------------------------------|--------------------------|
| Form PTO 1449 (Rev. 2-32) U.S. Department of Commerce Patent and Trademark Office | | | | Atty. Docket No. IMMR-IMD0002E | Serial No. 10/657,144 |
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | | | Applicant: David Alexander et al. | |
| | | | | Filed: September 9, 2003 | Group: 3714 |

U.S. Patent Documents

| Init. | | Document No. | Date | Name | Class | Subclass | Filing Date |
|-------|----|--------------|------------|------------------|-------|----------|-------------|
| 04/ | FU | 5,742,278 | 4/21/1998 | Chen et al. | | | |
| 04/ | FV | 5,746,753 | 5/5/1998 | Sullivan et al. | | | |
| 04/ | FW | 5,755,577 | 5/26/1998 | Gillio | | | |
| 04/ | FX | 5,766,016 | 6/16/1998 | Sinclair et al. | | | |
| 04/ | FY | 5,767,839 | 6/16/1998 | Rosenberg | | | |
| 04/ | FZ | 5,768,134 | 6/16/1998 | Swaelens et al. | | | |
| 04/ | GA | 5,769,640 | 6/23/1998 | Jacobus et al. | | | |
| 04/ | GB | 5,769,650 | 6/23/1998 | Aoyama et al. | | | |
| 04/ | GC | 5,772,836 | 6/30/1998 | Ogawa | | | |
| 04/ | GD | 5,785,630 | 7/28/1998 | Bobick et al. | | | |
| 04/ | GE | 5,791,908 | 8/11/1998 | Gillio | | | |
| 04/ | GF | 5,800,177 | 9/1/1998 | Gillio | | | |
| 04/ | GG | 5,800,178 | 9/1/1998 | Gillio | | | |
| 04/ | GH | 5,805,140 | 9/8/1998 | Rosenberg et al. | | | |
| 04/ | GI | 5,807,115 | 9/15/1998 | Hu | | | |
| 04/ | GJ | 5,817,107 | 10/6/1998 | Schaller | | | |
| 04/ | GK | 5,821,920 | 10/13/1998 | Rosenberg et al. | | | |
| 04/ | GL | 5,825,308 | 10/20/1998 | Rosenberg | | | |
| 04/ | GM | 5,825,941 | 10/20/1998 | Linford et al. | | | |
| 04/ | GN | 5,828,197 | 10/27/1998 | Martin et al. | | | |
| 04/ | GO | 5,853,292 | 12/29/1998 | Eggert et al. | | | |

Foreign Documents

Translation

| Init. | | Document No. | Date | Country | Class | Subclass | Yes | No |
|-------|--|--------------|------|---------|-------|----------|-----|----|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|-----|----|--|
| 04/ | GP | Lake, "CYBERMAN from Logitech, 1994. |
| 04/ | GQ | Marcus, "Touch Feedback in Surgery", Proceeding Cutting Edge", September 8-11, 1994, pp. 96-97. |
| 04/ | GR | McAfee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual", January 1988. |
| 04/ | GS | Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display", Ph.D. Dissertation, MIT, June 1995. |

| | |
|-----------------------------------|----------------------------------|
| Examiner <i>cynthia storci</i> | Date Considered <i>1/8/06</i> |
|-----------------------------------|----------------------------------|

Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant.

| | | | | | |
|---|--|--|--|-----------------------------------|--------------------------|
| Form PTO 1449 (Rev. 2-32) U.S. Department of Commerce Patent and Trademark Office | | | | Atty. Docket No. IMMR-IMD0002E | Serial No. 10/657,144 |
|---|--|--|--|-----------------------------------|--------------------------|

| | | | | | |
|---|--|--|--|--------------------------------------|----------------|
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | | | Applicant: David Alexander et al. | |
| | | | | Filed: September 9, 2003 | Group: 3714 |

| U.S. Patent Documents | | | | | | | |
|-----------------------|----|--------------|------------|--------------------|-------|----------|-------------|
| Init. | | Document No. | Date | Name | Class | Subclass | Filing Date |
| 04/ | GT | 5,855,583 | 1/5/1999 | Wang et al. | | | |
| 04/ | GU | 5,873,731 | 2/23/1999 | Prendergast | | | |
| 04/ | GV | 5,873,732 | 2/23/1999 | Hasson | | | |
| 04/ | GW | 5,880,976 | 3/9/1999 | DiGioia III et al. | | | |
| 04/ | GX | 5,882,206 | 3/16/1999 | Gillio | | | |
| 04/ | GY | 5,882,207 | 3/16/1999 | Lampotang et al. | | | |
| 04/ | GZ | 5,889,670 | 3/30/1999 | Schuler et al. | | | |
| 04/ | HA | 5,890,908 | 4/6/1999 | Lampotang et al. | | | |
| 04/ | HB | 5,891,131 | 4/6/1999 | Rajan et al. | | | |
| 04/ | HC | 5,909,380 | 6/1/1999 | Dubois et al. | | | |
| 04/ | HD | 5,941,710 | 8/24/1999 | Lampotang et al. | | | |
| 04/ | HE | 5,945,056 | 8/31/1999 | Dau et al. | | | |
| 04/ | HF | 5,947,743 | 9/7/1999 | Hasson | | | |
| 04/ | HG | 5,956,040 | 9/21/1999 | Asano et al. | | | |
| 04/ | HH | 5,967,790 | 10/19/1999 | Strover et al. | | | |
| 04/ | HI | 5,995,738 | 11/30/1999 | DiGioia III et al. | | | |
| 04/ | HJ | 6,057,828 | 5/2/2000 | Rosenberg et al. | | | |
| 04/ | HK | 6,062,865 | 5/16/2000 | Bailey | | | |
| 04/ | HL | 6,086,528 | 7/11/2000 | Adair | | | |
| 04/ | HM | 6,104,382 | 8/15/2000 | Martin et al. | | | |
| 04/ | HN | 6,111,577 | 8/29/2000 | Zilles et al. | | | |

| Foreign Documents | | | | | | | Translation | |
|-------------------|--|--------------|------|---------|-------|----------|-------------|----|
| Init. | | Document No. | Date | Country | Class | Subclass | Yes | No |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| Other Documents (Including Author, Title, Date, Pertinent Pages, etc.) | | | | | | | |
|--|---------------------|--|--|-----------------|---------------|--|--|
| 04/ | HO | Noll, "Man-Machine Tactile", SID Journal, July/August 1972. | | | | | |
| 04/ | HP | Ouhyoung, et al., "A Low-Cost Force Feedback Joystick and its Use in PC Video Games", IEEE Transactions on Consumer Electronics, vol. 41, no. 3, August 1995. | | | | | |
| 04/ | HQ | Ouh-young, "Force Display in Molecular Docking", Doctoral Dissertation, 1990, pp. 1-369. | | | | | |
| 04/ | HR | Ouhyoung et al., "The Development of a Low-Cost Force Feedback Joystick and its Use in the Virtual Environment", Proceedings of the Third Pacific Conference on Computer Graphics and Applications, August 21-24, 1995, pp. 309-319. | | | | | |
| Examiner | <i>Maria Stoica</i> | | | Date Considered | <i>1/5/06</i> | | |

Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant.

Form PTO 1449
(Rev. 2-32) U.S. Department of Commerce
Patent and Trademark Office

Atty. Docket No.
IMMR-IMD0002E

Serial No.
10/657,144

| | |
|---|---|
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | Applicant: David Alexander et al. |
| | Filed: September 9, 2003 |

U.S. Patent Documents

Foreign Documents

Translation

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|-----------|----|---|
| <i>dy</i> | IQ | Yamakita et al., "Tele-Virtual Reality of Dynamic Mechanical Model", IEEE, 1992, pp. 1103-1110. |
| | | |
| | | |
| | | |

Examiner Ariana Stoica Date Considered 1/5/06
Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant.